

Moments

Instructions: Complete each box. Give every answer to a calculation with a **unit**, and always use the **perpendicular** distance from the pivot.

The Moment of a Force — in Words

... in Symbols

REMEMBER



Weight acts through the **centre of gravity** of an object.

Example — Write Your Own Moment Question

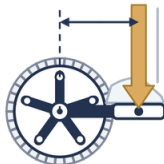
include a force, a distance and a unit

YOUR QUESTION

WORKING & ANSWER

Which Has the Largest Moment?

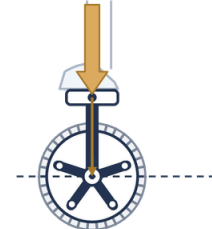
the same force is applied in each case



A ☐



B ☐



C ☐

Tick the diagram with the largest moment, then explain your choice on the line below.

Conditions for Equilibrium — Complete the Sentence

When an object is balanced (in equilibrium): total _____ moment = total _____ moment

Exam-Style Question

[7 marks]

A **light** beam rests on two supports, **A** and **B**, as shown in Figure 1. The beam is **240 cm** long. A crate rests on the beam **600 mm** from support **A**. The upward force from support **B** is **0.45 kN**. The weight of the beam is negligible.

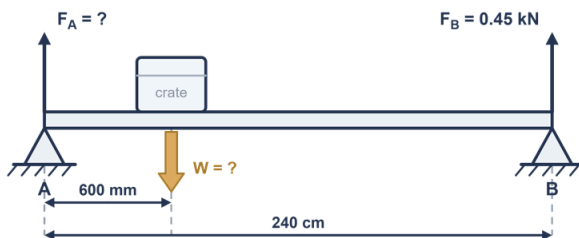


Figure 1 — not to scale

(a) Convert the two distances into metres. [2]

(b) Calculate the weight of the crate. [3]

(c) Calculate the upward force from support A. [2]

EXTENSION

The crate is now moved along the beam **towards support B**. Describe and explain how the upward force from support B changes. [2]
